

REMARKS/ARGUMENTS

Upon entry of the above amendment, claims 1-10 will have been canceled without prejudice to or disclaimer of the subject matter recited therein. Claims 11-22 will have been newly submitted for consideration by the Examiner. In view of the above, Applicants respectfully request reconsideration of the outstanding rejections of all the claims pending in the present application, and submit that such action is believed to be appropriate and proper.

Initially, Applicants would like to express their appreciation to the Examiner for the detailed Official Action provided, for the acceptance of the drawings filed in the present application on June 26, 2001, and for the acknowledgment of Applicants' claims for priority under 35 U.S.C. §119 and receipt of the certified copies of the priority documents in the Official Action.

Applicants further note with appreciation the Examiner's acknowledgment of Applicants' Information Disclosure Statements filed in the present application on September 25, 2001, and August 13, 2002 by the return of the initialed and signed PTO-1449 Forms, and for consideration of the documents cited in the Information Disclosure Statements.

Turning to the merits of the action, the Examiner rejected claim 4 under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. By the present response, Applicants have canceled claim 4 and have submitted new claim 16 which is related to

the canceled claim 4. In this amendment, claim 16 is dependent on claim 15 which is related to the claim 2, and the noted limitation of claim 16 thus has sufficient antecedent basis. Thus, Applicants respectfully request that the Examiner withdraw this rejection.

The Examiner rejected claims 1-3, 9, and 10 under 35 U.S.C. § 103(a), as being unpatentable over SATO (U.S. Patent No. 6,532,307) in view of MATSUURA et al. (U.S. Patent 6,459,816). The Examiner also rejected claim 4 under 35 U.S.C. 35 § 103(a), as being unpatentable over the combination of SATO (U.S. Patent No. 6,532,307) and MATSUURA et al. (U.S. Patent 6,459,816), and further in view of DE QUEIROZ (U.S. Patent 6,175,653). The Examiner rejected claim 5 under 35 U.S.C. § 103(a), as being unpatentable over the combination of SATO (U.S. Patent No. 6,532,307), MATSUURA et al. (U.S. Patent 6,459,816), and DE QUEIROZ (U.S. Patent 6,175,653), and further in view of KO (Japanese Laid Open Publication No. 2000-134459). The Examiner rejected claim 6 under U.S.C. 35 § 103(a), as being unpatentable over the combination of SATO (U.S. Patent No. 6,532,307) and MATSUURA et al. (U.S. Patent 6,459,816), and further in view of PARKER et al. (U.S. Patent 6,307,962). The Examiner rejected claims 7 and 8 under U.S.C. 35 § 103(a), as being unpatentable over the combination of SATO (U.S. Patent No. 6,532,307) and MATSUURA et al. (U.S. Patent No. 6,459,816), and further in view of CURRY (U.S. Patent No. 5,532,307).

As noted above, Applicants have canceled the rejected claims and have submitted new claims 11-22. In this regard, Applicants note that newly added claim 11 generally corresponds to original claim 1, and that claim 12 is newly submitted. Newly added

claim 13 generally corresponds to original claim 6, and claim 14 is newly submitted. Newly added claim 15 generally corresponds to original claim 2. Newly added claim 16 generally corresponds to original claim 4. Newly added claim 17 generally corresponds to original claim 5. Newly added claim 18 generally corresponds to original claim 3. Newly added claim 19 generally corresponds to original claim 7. Newly added claim 20 generally corresponds to original claim 8. Newly added claim 21 generally corresponds to original claim 9. Newly added claim 22 generally corresponds to original claim 10.

In view of the herein-contained amendments and remarks, Applicants respectfully traverse the above rejections based on newly added claims 11-22 and will discuss said rejections with respect to the pending claims in the present application hereinbelow. The newly added claims are not intended to limit or narrow the subject matter claimed in the above canceled claims, but to clarify the subject matter recited in the canceled claims.

Applicants' claims 11-19 generally relate to an image processing apparatus which comprises an orthogonal transformer configured to transform multi-bit image data into orthogonal transform coefficients, and a quantizer configured to quantize the orthogonal transform coefficients for each spatial frequency of the multi-bit image data. The image processing apparatus also has a block data generator which generates a block of data. The block of data comprises the quantized data of each spatial frequency. Further, the image processing apparatus has a frequency banding section which rearranges the quantized data in the generated block of data so as to band the quantized data of each spatial frequency and so as to align the quantized data of a spatial frequency of the

generated block of data with the quantized data of the same spatial frequency of the next generated block of data, and which outputs, as bit serial data, the quantized data of the spatial frequency over a plurality of the rearranged blocks. Moreover, the image processing apparatus has a coder section which compresses the bit serial data. Claims 21 and 22 recite generally related methods.

Applicants' claim 20 generally relates to a multifunction apparatus which comprises an image imputer configured to scan an original document to obtain multi-bit image data, a printer configured to print the multi-bit image data, and a communicator configured to transmit the multi-bit image data. The multifunction apparatus also has an image processor. The image processor comprises an orthogonal transformer configured to transform the multi-bit image data into orthogonal transform coefficients, and a quantizer configured to quantize the orthogonal transform coefficients for each spatial frequency of the multi-bit image data. The image processor also has a block data generator configured to generate a block of data. The block of data comprises the quantized data of each spatial frequency. Further, the image processor has a frequency banding section which rearranges the quantized data in the generated block of data so as to band the quantized data of each spatial frequency and so as to align the quantized data of a spatial frequency of the generated block of data with the quantized data of the same spatial frequency of the next generated block of data, and which outputs, as bit serial data, the quantized data of the spatial frequency over a plurality of the rearranged blocks. Moreover, the image processor has a coder which compresses the bit serial data.

On the contrary, Fig. 2 of SATO discloses a discrete wavelet transformer E1, a quantizer E2, and an entropy encoder E3. However, SATO does not disclose at least the claimed block data generator and the claimed frequency banding section, since SATO does not teach any procedures between the quantizer E2 and the entropy encoder E3. The claimed block data generator generally corresponds, for example, to the block data generating section 105 of Fig. 3 of the present invention, and the frequency banding section generally corresponds to e.g., the frequency banding section 106 of Fig. 3 of the present invention. Both the claimed block data generator and the claimed frequency banding section perform procedures between the claimed quantizing section and the claimed coding section. Thus, SATO does not disclose at least the claimed block data generator and the claimed frequency banding section.

Further, the frequency banding section of the present invention rearranges the quantized data in the generated block of data so as to band the quantized data of each spatial frequency and so as to align the quantized data of a spatial frequency of the generated block of data with the quantized data of the same spatial frequency of the next generated block of data, and outputs, as bit serial data, the quantized data of the spatial frequency over a plurality of the rearranged blocks. However, SATO does not disclose this feature of the present invention, since SATO does not teach the claimed frequency banding section.

Therefore, it is respectfully submitted that the features recited in Applicants independent claims 11, and 20-22 are not disclosed in SATO.

Fig. 25 of MATSUURA et al. disclose a block dividing unit 2103 and a wavelet transform unit 2104. However, similar to the above-noted shortcomings of SATO, Fig. 25 of MATSUURA et al. do not teach any procedures between a quantizing unit 2105 and an encoding unit 2106. Thus, MATSUURA et al. do not disclose at least the claimed block data generator and the claimed frequency banding section.

Therefore, it is respectfully submitted that the features recited in Applicants independent claims 11, and 20-22 are not disclosed in MATSUURA et al.

The combinations of the pending claims are clearly distinct from any proper combination of SATO and MATSUURA et al., since neither SATO nor MATSUURA et al. discloses at least the above features recited in any of Applicant's claims. Thus, the pending claims are submitted to be patentable over the Examiner's proposed combination.

Also with respect to dependent claims 12-19, since these claims are dependent from allowable independent claim 20, which is allowable for at least the reasons discussed supra, these dependent claims are also allowable for at least these reasons. Further, these dependent claims recite additional features which further define the present invention over the references of record.

Accordingly, the Examiner is respectfully requested to withdraw all rejections under 35 U.S.C. § 103(a).

Accordingly, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections and an indication of the allowability of all the claims pending in the present application in due course.

SUMMARY AND CONCLUSION

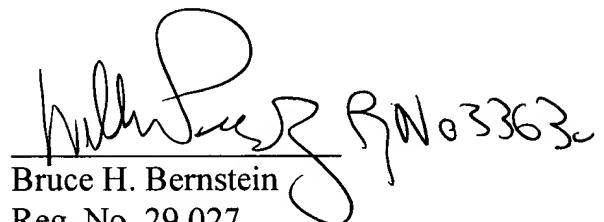
Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have canceled the rejected claims and have submitted new claims for consideration by the Examiner. Accordingly, Applicants have provided a clear evidentiary basis supporting the patentability of all claims in the present application and respectfully request an indication of the allowability of all the claims pending in the present application in due course.

Applicants note that this amendment is being made to advance prosecution of the application to allowance, and with respect to the claimed features argued as deficient in the prior art, should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

P21149.A04

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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